2000-2001 Influenza Summary

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2000-2001 Missouri Influenza Season

The 2000-2001 influenza season was mild in Missouri and was the first season since 1995-96 that the influenza A (H3N2) virus did not predominate. Influenza A (H1N1) was the predominant circulating virus strain in Missouri this season, and almost two-thirds of laboratory confirmed influenza cases were in persons less than 20 years of age.

Laboratory-Confirmed Influenza Cases

The first laboratory-confirmed influenza case of the 2000-2001 season was identified in November. On November 21, 2000 a 60 year-old female from Greene County was diagnosed with influenza by viral culture method from an isolate forwarded by her physician to the Missouri State Public Health Laboratory (SPHL). The SPHL identified the sample as influenza A, subtype H3N2. (This case was one of only two, confirmed influenza A (H3N2) cases, reported in Missouri this season.) The isolate was sent to the Centers for Disease Control and Prevention (CDC) laboratory where it was confirmed as type A/Panama/2007/99-like (H3N2) strain. This is similar to the influenza strain included in the vaccine for the 2000-2001 season.

There were 1,886 laboratory-confirmed cases of influenza reported in Missouri during the 2000-2001 season. Of the 1,886 confirmed cases, 795 (42%) were type A with 2 cases sub-typed as (H3N2) and 43 cases sub-typed as (H1N1). There were 232 (12%) confirmed cases of type B influenza in Missouri. The remaining reported confirmed cases, 859 (46%), were detected by the influenza rapid-testing method, that did not distinguish type. Figure 1 shows laboratory-confirmed influenza cases by county of residence.

The number of confirmed cases of influenza type A began increasing during week 51 (the week ending December 23, 2000) and peaked during week 6 (the week ending February 10, 2001). The number of cases returned to baseline levels by week 16 (the week ending April 21, 2001), and the last laboratory confirmed cased of influenza A was reported in week 19 (the week ending May 19, 2001), (see Figure 2). The last case of influenza B was reported in week 17 (week ending April 28, 2001).

Children are generally more susceptible to influenza particularly in years with new circulating strains. Influenza A (H1N1) has not been reported as the predominant influenza strain in Missouri since 1995-96. This may be the reason for what was seen in 2000-2001. During the 2000-2001 season, persons 0-19 years of age accounted for 64% of the cases of confirmed influenza. This is remarkable when compared to the figures

from the 1999-2000 season when only 34% of the confirmed cases were attributed to the infants through age 19 populations (see figure 3 and 4).

Influenza-Like Illness

Missouri active surveillance sites reporting to local public health agencies submitted data showing increases of influenza-like illness beginning week 46 (week ending November 18, 2000). Over the next few weeks, numbers of reported cases fluctuated around the level of the 10-year median, and fell during weeks 51 (week ending December 23, 2000) through 1 (week ending January 6, 2001). This year-end decrease is not surprising because the active surveillance system receives the majority of data from school nurses; therefore, each year the number of cases of influenza-like illnesses reported typically shows a drop during the winter holiday weeks. Numbers of influenza-like illness cases began rising in week 2 (week ending January 13, 2001), sharply peaking at week 4 (week ending January 27, 2001), followed by a slight fall on week 5 (week ending February 3, 2001), and then a gradual drop to below the 10 year median at week 12 (week ending March 24, 2001). A comparison of the 2000-2001 season to what has been reported over the past ten years (as represented by the 10 year median) shows that the curve for last year's cases rose above the 10- year median at week 2 (week ending January 13, 2001), remained elevated through week 11 (week ending March 17, 2001), dipped below the median figure during weeks 12 (week ending March 24, 2001) and 13 (week ending March 31, 2001), and again rose above it during weeks 14 (week ending April 7, 2001), 15 (week ending April 14, 2001) and 17 (week ending April 28, 2001), (see figure 5). Nationally influenza morbitity peaked at 4% for 4 consecutive weeks from the week ending January 20 through the week ending February 10, 2001.

Pneumonia and influenza (P&I) deaths

Throughout the 2000-2001 influenza season, the numbers of pneumonia and influenza (P&I) deaths in Missouri were below the 10 year median* with the exception of weeks 12 (week ending March 24, 2001), 14 (week ending April 7, 2001), 15 (week ending April 14, 2001), and 17 (week ending April 28, 2001). The P&I mortality experience in Missouri in 2000-2001 appears to be less than that reported in the influenza seasons between 1992 through 1999, but more than reported for the 1997-98 and 1999-00 seasons (see figure 6).

Nationally, the percentage of P&I deaths did not exceed the epidemic threshold during the 2000-2001 influenza season according to reports from the vital statistics offices of 122 U.S. cities. (The epidemic threshold is 1.645 standard deviations about the seasonal baseline and the seasonal baseline is calculated using a robust regression procedure on the previous ten years of data.) The proportion of deaths attributed to P&I peaked at 8.0 percent during week 10. During the previous 3 seasons, the percentage of deaths attributed to P&I was above the epidemic threshold for 10 consecutive weeks each season. In the 1996-97, 1997-98, and 1998-99 influenza seasons, the P&I mortality levels peaked between 8.8 and 9.1 percent. In the 1999-00 season, the P&I mortality deaths peaked at 11.2 percent; however, CDC issued a statement of caution with that

report indicating it should be interpreted with caution because of changes in case definition in 1999. Case definition changes may have contributed to higher estimates of P&I mortality in 1999 than in previous years. This may also be true for 2000-01. CDC's analysis of those changes may be referenced in the March 10, 2000, Morbidity and Mortality Report (MMWR).

Update: Influenza Activity---United States, 1999-2000 Season
MMWR March 10, 2000 / Vol. 49 (09) 173-7
May be accessed via the CDC web site at:
http://www.cdc.gov/epo/mmwr/preview/mmwrhtml/mm4909a1.htm.

For more information on national influenza reports, visit CDC's web site at: http:///wwwcdc.gov/, select: health topics, select: flu, select: weekly surveillance reports. Also see, 2000-01 INFLUENZA SEASON SUMMARY UPDATE (Week ending June 8, 2001) at: http://www.cdc.gov/ncidod/diseases/flu/weeklyarchives/00-01summary.htm

Outbreaks of Influenza-Like Illness

Compared to last season, reported influenza outbreaks in long-term care facilities was down substantially. Over the past six years, reported influenza-like illness outbreaks among long-term care facilities in Missouri has ranged from 3 to 10 outbreaks a year. The Missouri Department of Health and Senior Services (MDHSS) received only one report of an influenza-like-illness outbreak in a long-term care facility during the 2000-01 season.

Influenza-like illness spread quickly in the schools. Seventeen school closings were reported in January through the first week of February because of numerous staff and student absences related to influenza-like illness. Absenteeism ranged from 14 to 39 percent and classes were cancelled for up to five days. Students, faculty, and staff reported classic influenza symptoms including fevers up to 102^{o}F, sore throat, headaches, muscle aches, cough, and runny nose. One school closed on two separate occasions.

2001-2002 Influenza Vaccine Recommendations

The Food and Drug Administration Vaccines and Related Biological Products Advisory Committee (VRBPAC) has recommended that the 2001-2002 trivalent influenza vaccine for the United States contain A/Moscow/10/99-like (H3N2), A/New Caldonia/20/99-like (H1N1), and B/Sichuan/379/99-like viruses. These particular strains were selected for use because they are representative of currently circulating A (H3N2), A (H1N1) and B viruses. For the A/Moscow/10/99-like (H3N2) virus, United States manufacturers will use the antigenically equivalent A/Panama/2007/99 (H3N2) virus. For the B/Sichuan/379/99-like (H1N1) virus, U.S. manufacturers may use B/Johannesburg/5/99, B/Victoria/504/2000, or B/Guangdong/120/2000 virus.

Influenza vaccine recommendations for 2001-2002 that follow are reprinted from:

Prevention and Control of Influenza: Recommendations of the Advisory Committee on Immunization Practices (ACIP)
MMWR April 20, 2001 / Vol. 50 / RR-04.
http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5004a1.htm

*The 10-year median for P&I deaths is obtained as follows. For the week in question, the numbers of P&I deaths for that same week during each of the past 10 years are arranged in ascending order. The median is the value, which divides these 10 numbers into two equal groups such that half of the numbers are greater than and half are less than this value.

Figure 1
Laboratory-Confirmed Influenza Cases by County in Missouri
2000-2001Season
(through Week 20 – ending May 19, 2001)

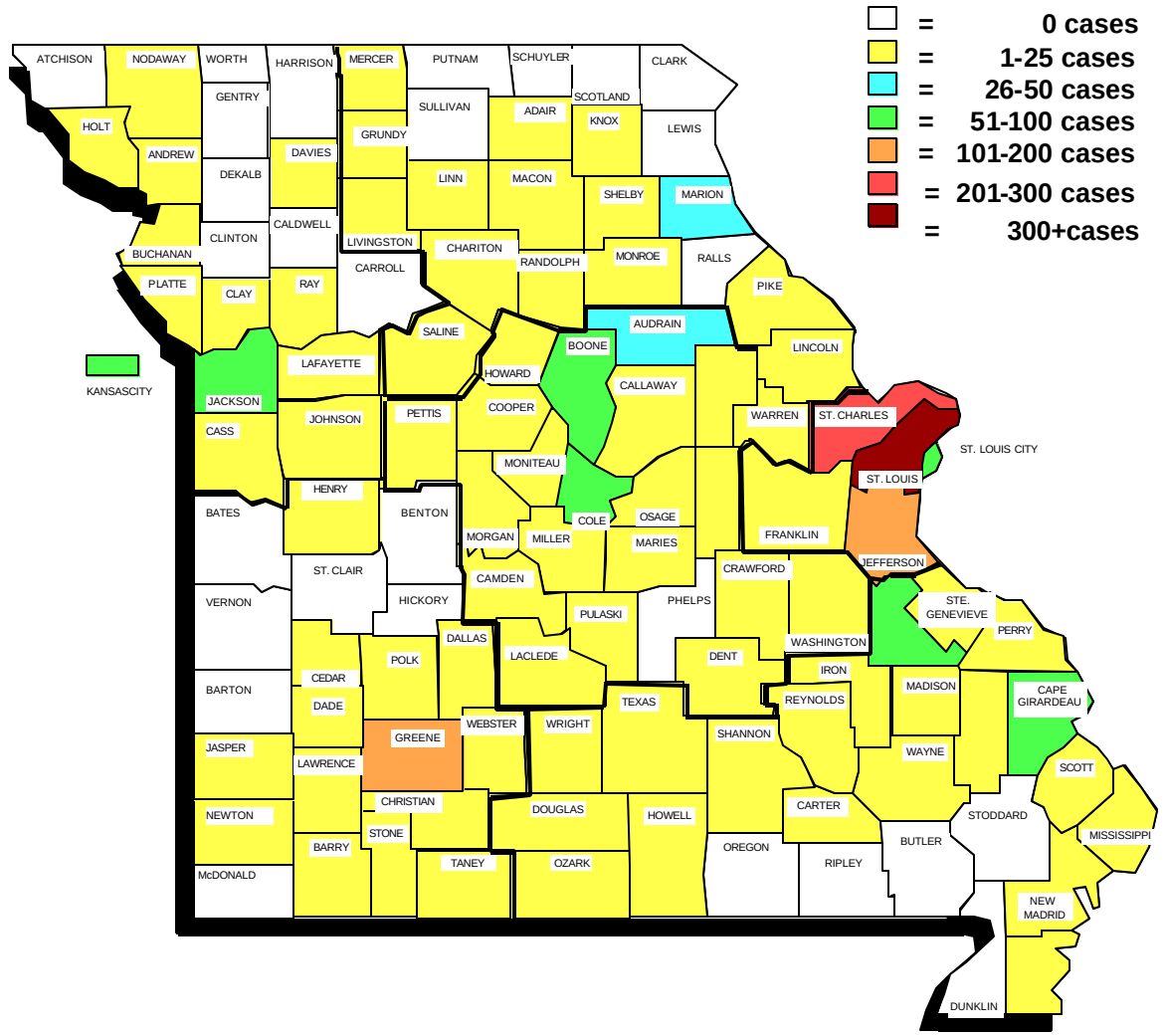

Figure 2
Laboratory-Confirmed Influenza Cases by Week of Report in Missouri
2000-2001 Season
(through Week 20 - ending May 19, 2001)

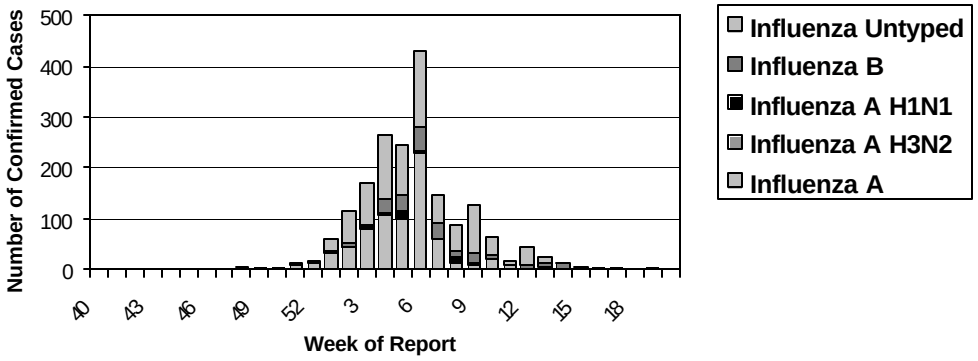

Figure 3
Laboratory-Confirmed Influenza Cases in Missouri
1999-2000 Season
(Through Week 20 - Ending May 20, 2000)

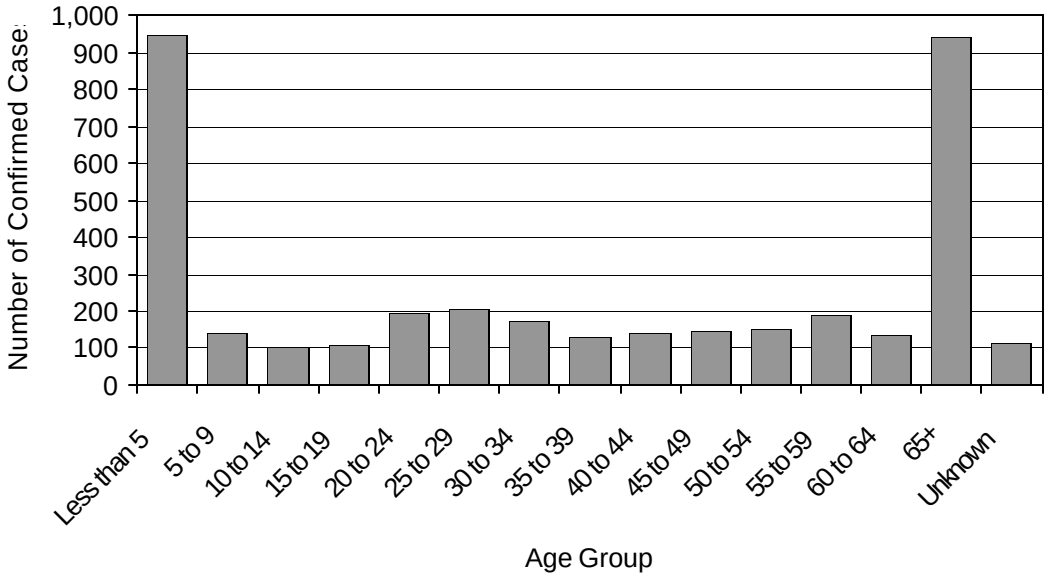

Figure 4
Laboratory-Confirmed Influenza Cases in Missouri
2000-2001 Season
(Through week 20 - Ending May 19, 2001)

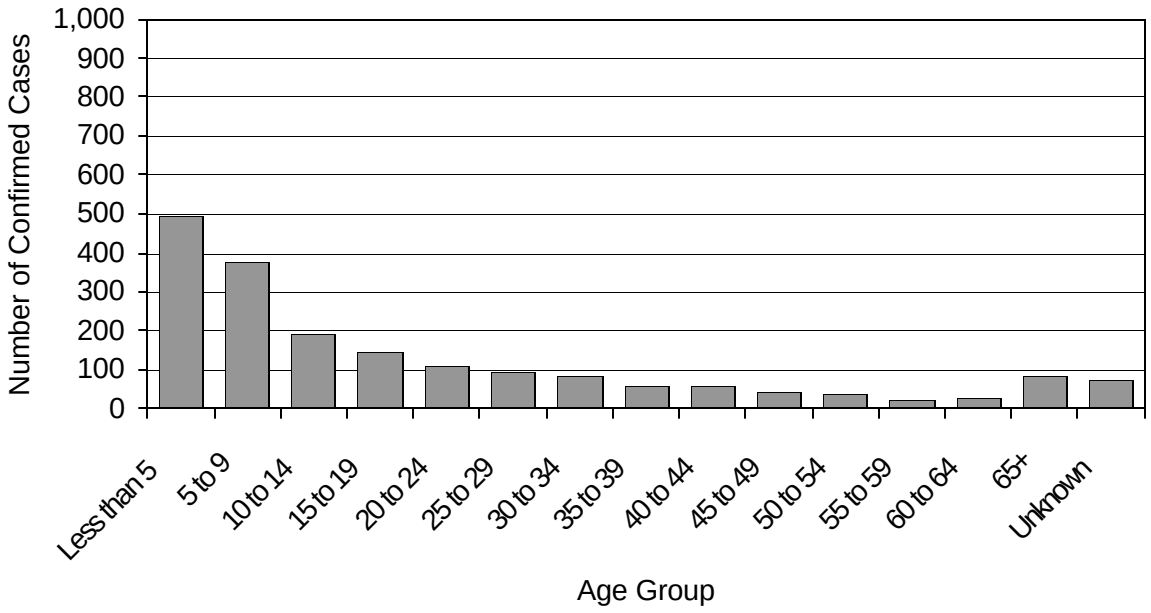

Figure 5
Influenza-like Illness Cases by Week of Report in Missouri
99/00 Influenza Season, 00/01 Influenza Season,
and 10-Year Median

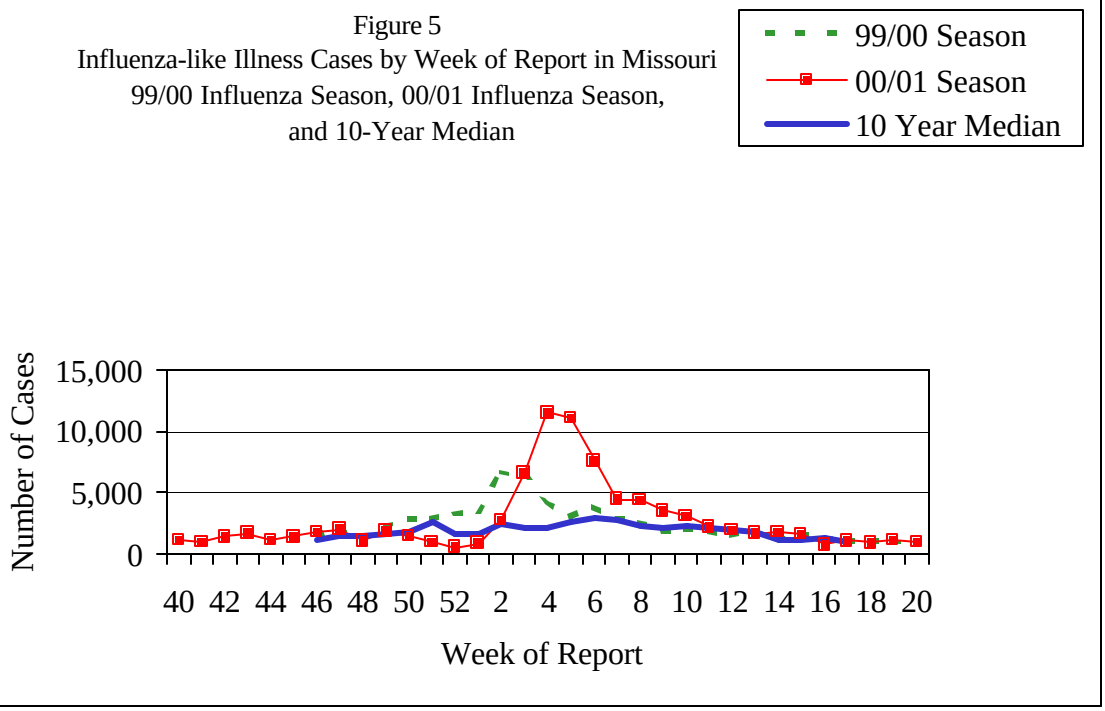

Figure 6
Pneumonia and Influenza Deaths by Week of Death in Missouri
99/00 Influenza Season, 00/01 Influenza Season,
and 10-Year Median